

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Canceled)

Claim 2 (Currently Amended): The method of ~~claim 1~~claim 14 wherein said step of determining the sender identifier comprises the step of ascertaining an IP address for the sender.

Claim 3 (Currently Amended): The method of ~~claim 1~~claim 14 wherein said step of determining the sender identifier comprises the step of associating the sender with a peer IP address of a TCP connection associated with the sender.

Claim 4 (Cancelled)

Claim 5 (Currently Amended): The method of ~~claim 1~~claim 14 wherein said cumulative penalty count value comprises an activity penalty count charged to the sender for current undesirable sender activity and a time-dependent penalty count determined from previous undesirable sender activity.

Claim 6 (Original): The method of claim 5 wherein said time-dependent penalty count comprises a zero value subsequent to a pre-established retention period.

Claim 7 (Previously Presented): The method of claim 5 wherein said time-dependent penalty count comprises a prior activity penalty count value reduced by a time-dependent decay factor.

Claim 8 (Currently Amended): The method of ~~claim 1~~claim 14 wherein said undesirable activity comprises a member of the group consisting of: sending a large number of e-mails, sending emails of relatively large sizes, using a relatively large amount of TCP connection time, and causing a TCP timeout.

Claim 9 (Currently Amended): The method of ~~claim 1~~claim 14 wherein said system overall resource usage status is a function of a member of the group consisting of: the number of concurrent TCP connections being maintained, the number of e-mail files in an incoming message queue, and the amount of disk space being utilized for an incoming message queue.

Claim 10 – 11 (Canceled) .

Claim 12 (Currently Amended): The method of ~~claim 11~~claim 14 wherein, for said selective-rejection state, if said cumulative penalty count value has a zero value, said step of processing the incoming e-mail comprises the step of accepting the incoming e-mail.

Claim 13 (Canceled)

Claim 14 (Currently Amended): A method comprising:
determining a sender identifier based on a sender of an incoming email;
determining a cumulative penalty count value associated with said sender identifier,
wherein determining said cumulative penalty count value comprises assessing a penalty count
value to said sender identifier for an undesirable activity performed by the sender;
retrieving a system overall resource usage status associated with the communication
device; and
processing the incoming e-mail on the basis of said cumulative penalty count value and
said system overall resource usage status.~~The method of claim 13~~
wherein said step of processing the incoming e-mail comprises the step of assigning an
operating state to the communication device, said operating state being a function of said system
overall resource usage status, and said operating state is a member of the group consisting of: a
normal operating state, a selective-rejection operating state, and a random-rejection operating
state,
wherein, for said selective-rejection state, if said cumulative penalty count value has a
nonzero value, said step of processing the incoming e-mail comprises the steps of:
specifying a rejection factor;

generating a random number; and
randomly rejecting the incoming e-mail on the basis of said rejection factor and
said random number, and

wherein said step of randomly rejecting comprises the step of accepting the incoming e-mail if said random number is greater than said rejection factor and rejecting the incoming e-mail if said random number is not greater than said rejection factor.

Claim 15 (Currently Amended): A method comprising:

determining a sender identifier based on a sender of an incoming email;
determining a cumulative penalty count value associated with said sender identifier,
wherein determining said cumulative penalty count value comprises assessing a penalty count
value to said sender identifier for an undesirable activity performed by the sender;

retrieving a system overall resource usage status associated with the communication
device; and

processing the incoming e-mail on the basis of said cumulative penalty count value and
said system overall resource usage status,

wherein said step of processing the incoming e-mail comprises the step of assigning an
operating state to the communication device, said operating state being a function of said system
overall resource usage status, and said operating state is a member of the group consisting of: a
normal operating state, a selective-rejection operating state, and a random-rejection operating
state,

wherein, for said selective-rejection state, if said cumulative penalty count value has a
nonzero value, said step of processing the incoming e-mail comprises the steps of:

specifying a rejection factor;

generating a random number; and

randomly rejecting the incoming e-mail on the basis of said rejection factor and
said random number, and

~~The method of claim 13~~ wherein said step of specifying the rejection factor comprises
determining a rejection factor value based on the system overall resource usage status.

Claim 16 (Currently Amended): A method comprising:

determining a sender identifier based on a sender of an incoming email;
determining a cumulative penalty count value associated with said sender identifier,
wherein determining said cumulative penalty count value comprises assessing a penalty count
value to said sender identifier for an undesirable activity performed by the sender;
retrieving a system overall resource usage status associated with the communication
device; and
processing the incoming e-mail on the basis of said cumulative penalty count value and
said system overall resource usage status.

wherein said step of processing the incoming e-mail comprises the step of assigning an
operating state to the communication device, said operating state being a function of said system
overall resource usage status, and said operating state is a member of the group consisting of: a
normal operating state, a selective-rejection operating state, and a random-rejection operating
state.
~~The method of claim 11,~~

wherein, for said random-rejection state, if said cumulative penalty count value has a nonzero value, said step of processing the incoming e-mail comprises the step of rejecting the incoming e-mail.

Claim 17 (Canceled)

Claim 18 (Currently Amended): A method comprising:

determining a sender identifier based on a sender of an incoming email;
determining a cumulative penalty count value associated with said sender identifier,
wherein determining said cumulative penalty count value comprises assessing a penalty count
value to said sender identifier for an undesirable activity performed by the sender;
retrieving a system overall resource usage status associated with the communication
device; and
processing the incoming e-mail on the basis of said cumulative penalty count value and
said system overall resource usage status.

wherein said step of processing the incoming e-mail comprises the step of assigning an operating state to the communication device, said operating state being a function of said system overall resource usage status, and said operating state is a member of the group consisting of: a normal operating state, a selective-rejection operating state, and a random-rejection operating state.
~~The method of claim 17~~

wherein, for said random-rejection state, if said cumulative penalty count value has a zero value, said step of processing the incoming e-mail comprises the steps of:

deriving an overall resource usage factor;

generating a random number; and

randomly rejecting the incoming e-mail on the basis of said overall resource usage factor, said random number, and said cumulative penalty count value, and

wherein said step of randomly rejecting comprises the step of accepting the incoming e-mail if said random number is greater than a product of said overall resource usage factor and said cumulative penalty count value, and rejecting the incoming e-mail if said random number is not greater than said product of said overall resource usage factor and said cumulative penalty count value.

Claim 19 (Previously Presented): The method of claim 18 wherein said overall resource usage factor is increased if a system overall resource usage status increases and said resource usage factor is decreased if said system overall resource usage status decreases.

Claim 20 – Claim 26 (Canceled)

Claim 27 (Currently Amended): The method of ~~claim 26~~claim 35 further comprising the steps of:

maintaining a behavior trace table entry for the e-mail sender; and

determining said previous sender penalty count from said behavior trace table.

Claim 28 (Original): The method of claim 27 further comprising the step of updating sender behavior values in said trace table entry in response to receipt of a sender e-mail.

Claim 29 (Previously Presented): The method of claim 28 wherein said sender behavior values include a member of the group consisting of: the number of e-mails, the total size of e-mails, and the total TCP connection time.

Claim 30 (Canceled)

Claim 31 (Currently Amended): A method comprising:
identifying an e-mail sender by determining a sender IP address based on an incoming email;
obtaining a previous sender penalty count value calculated for said sender IP address, wherein said previous sender penalty count value is based at least in part on previous undesirable activity performed by the sender;
accepting or rejecting the incoming e-mail based on said previous sender penalty count value;~~The method of claim 30~~
maintaining a behavior trace table entry for the e-mail sender;
determining said previous sender penalty count from said behavior trace table.
updating sender behavior values in said trace table entry in response to receipt of a sender e-mail by:
reducing said behavior trace table value by a time-dependent decay factor; and
adding a current behavior trace table value to said corresponding reduced behavior trace table value.

wherein said time-dependent decay factor is a function of the time interval between the last two updates of said behavior trace table entry and a pre-established retention period.

Claim 32 (Currently Amended): The method of ~~claim 26~~claim 31 wherein said previous sender penalty count value is determined from undesirable sender activity occurring over a pre-established retention period.

Claim 33 (Original): The method of claim 32 wherein said undesirable activity comprises a member of the group consisting of: sending a large number of e-mails, sending e-

mails of relatively large sizes, using a relatively large amount of TCP connection time, and causing a TCP timeout.

Claim 34 (Canceled)

Claim 35 (Currently Amended): A method comprising:
identifying an e-mail sender by determining a sender IP address based on an incoming email;
obtaining a previous sender penalty count value calculated for said sender IP address, wherein said previous sender penalty count value is based at least in part on previous undesirable activity performed by the sender;
accepting or rejecting the incoming e-mail based on said previous sender penalty count value; and~~The method of claim 34~~
updating said previous sender penalty count value by:
~~wherein said step of updating said previous sender penalty count value comprises the steps of:~~

reducing said previous sender penalty count value by a decay factor to yield a reduced sender penalty count value, said decay factor being a function of a pre-established retention period; and
adding an activity penalty count value to said reduced sender penalty count value to yield an updated sender penalty count value, said activity penalty count value calculated as a function of current sender e-mail activities.

Claim 36 (Previously Presented): The method of claim 35 wherein said decay factor is further a function of the time interval between calculation of said previous sender penalty count value and calculation of said activity penalty count value.

Claim 37 (Canceled)

Claim 38 (Currently Amended): The method of ~~claim 37~~claim 45, wherein said step of establishing the identity of the sender comprises the step of ascertaining an IP address of the sender.

Claim 39 (Cancelled)

Claim 40 (Currently Amended): The method of ~~claim 37~~claim 45, wherein said cumulative penalty count value comprises a prior penalty count value reduced by a time-dependent decay factor.

Claim 41 – 44 (Canceled)

Claim 45 (Currently Amended): A method comprising:
establishing an identity of a sender of an incoming email;
determining a cumulative penalty count value associated with said identity, wherein said cumulative penalty count value is based at least in part on previous undesirable activity performed by the sender;

retrieving a system overall resource usage status associated with the communication device; and

processing the incoming e-mail based on the cumulative penalty count value and the system overall resource usage status.~~The method of claim 44~~

wherein said step of processing the incoming e-mail comprises the step of assigning an operating state to the communication device, said operating state being a function of said system overall resource usage status.

wherein said operating state comprises a selective-rejection state, and wherein if said cumulative penalty count value has a nonzero value, said step of processing the incoming e-mail comprises the steps of:

specifying a rejection factor;

generating a random number; and

randomly rejecting the incoming e-mail on the basis of said rejection factor and said random number, and

wherein said step of randomly rejecting comprises the step of accepting the incoming e-mail if said random number is greater than said rejection factor and rejecting the incoming e-mail if said random number is not greater than said rejection factor.

Claim 46 (Currently Amended): A method comprising:
establishing an identity of a sender of an incoming email;
determining a cumulative penalty count value associated with said identity, wherein said cumulative penalty count value is based at least in part on previous undesirable activity performed by the sender;

retrieving a system overall resource usage status associated with the communication device; and

processing the incoming e-mail based on the cumulative penalty count value and the system overall resource usage status,

wherein said step of processing the incoming e-mail comprises the step of assigning an operating state to the communication device, said operating state being a function of said system overall resource usage status,

wherein said operating state comprises a selective-rejection state, and wherein if said cumulative penalty count value has a nonzero value, said step of processing the incoming e-mail comprises the steps of:

specifying a rejection factor;

generating a random number; and

randomly rejecting the incoming e-mail on the basis of said rejection factor and said random number, and ~~The method of claim 44~~

wherein said rejection factor is increased if said system overall resource usage status increases and said rejection factor is decreased if said system overall resource usage status decreases.

Claim 47 (Currently Amended): A method comprising:

establishing an identity of a sender of an incoming email;
determining a cumulative penalty count value associated with said identity, wherein said cumulative penalty count value is based at least in part on previous undesirable activity performed by the sender;
retrieving a system overall resource usage status associated with the communication device; and
processing the incoming e-mail based on the cumulative penalty count value and the system overall resource usage status,
wherein said step of processing the incoming e-mail comprises the step of assigning an operating state to the communication device, said operating state being a function of said system overall resource usage status.~~The method of claim 44~~

wherein said operating state comprises a random-rejection state, and wherein if said cumulative penalty count value has a nonzero value, said step of processing the incoming e-mail comprises the step of rejecting the incoming e-mail.

Claim 48 (Canceled)

Claim 49 (Currently Amended): A method comprising:
establishing an identity of a sender of an incoming email;
determining a cumulative penalty count value associated with said identity, wherein said cumulative penalty count value is based at least in part on previous undesirable activity performed by the sender;
retrieving a system overall resource usage status associated with the communication device; and
processing the incoming e-mail based on the cumulative penalty count value and the system overall resource usage status,
wherein said step of processing the incoming e-mail comprises the step of assigning an operating state to the communication device, said operating state being a function of said system overall resource usage status.~~The method of claim 48~~

wherein said operating state comprises a random-rejection state, and wherein if said cumulative penalty count value has a zero value, said step of processing the incoming e-mail comprises the steps of:

deriving a resource usage factor;

generating a random number; and

randomly rejecting the incoming e-mail on the basis of said resource usage factor, said random number, and said cumulative penalty count value, and

wherein said step of randomly rejecting comprises the step of accepting the incoming e-mail if said random number is greater than a product of said resource usage factor and said cumulative penalty count value, and rejecting the incoming e-mail if said random number is not greater than said product of said resource usage factor and said cumulative penalty count value.

Claim 50 (Previously Presented): The method of claim 49 wherein said resource usage factor is increased if said system overall resource usage status increases and said resource usage factor is decreased if said system overall resource usage status decreases.